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ABSTRACT

Increased interest in the problems associated with lower socio-economic urban schools has suggested possible differences between urban and suburban teachers. A Study was therefore undertaken to contrast the philosophic orientation, logical consistency, and teaching attitudes of elementary and secondary school teachers in two St. Louis school districts--one lower socio-economic and urban, the other, middle socio-economic and suburban. A total of 318 teachers responded to the GNC Scale of Logical Consistency in Ideas about Education and the Minnesota Teacher Attitude Inventory. Multivariate analyses of variance were used to ascertain differences between and with the two districts according to sex, age, degree, and teaching level. As a group, the suburban teachers were more logically consistent in relating their theoretical ideas to their practical views about education. The highest level was demonstrated by the suburban 20-29 age group. No differences were found between the districts in the maintenance of prescribed teaching attitudes by teachers. Results indicate that if logical consistency in educational ideas is desirable, more of the type of young teachers currently aspiring for suburban teaching should instead be encouraged to teach in urban schools. (An 11-page appendix contains data tables and a list of references.) (Author/RT)

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PHILOSOPHIC ORIENTATION, LOGICAL CONSISTENCY, AND TEACHING ATTITUDES OF URBAN AND SUBURBAN TEACHERS*

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Increased stress upon urban education has resulted in a growing interest in the characteristics of the schools and teachers in large cities. Numerous questions have been formulated about problems peculiar to the schools located in the lower-economic areas of such cities. One of the more common inquiries has been concerned with the possibility of a specific philosophical orientation and attitudinal posture attributable to the teachers in these schools. This seems plausible, considering the purported difficulty in gaining new teachers that urban schools have in contrast to their suburban counterparts.

In light of common state certification criteria for elementary and secondary teachers, it appears that the professional preparation of teachers is not a major factor in the relative attractiveness of urban and suburban teaching positions. On the other hand, the higher salary schedules of some suburban school systems may be somewhat influential, though unduly materialistic criteria for making such choices. Because of teaching's inherent idealism, however, it is more likely that teachers' perceptions of the social function of both the school and themselves may play more decisive roles in the selection process. It also appears that such views may be strongly influenced by individual economic and educational backgrounds.

Be this as it may, the practical choice on the part of teachers in selecting positions is usually guided by some type of theoretical framework of reference.

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This individual activity, however, is not at all dissimilar to that of a group such as a school system. Such an organization also engages in deliniating and assessing the assumptions, commitments, and criteria that guide (or are proposed as guides for) its practices. But utilizing theory to guide educational practice in a comprehensive and systematic manner is tatamount to engaging in "philosophic" activity. Thus it is probable that teachers employed in a given school or school system may also have a philosophic frame of reference characteristic of them as a group. It was in this light that a study was undertaken to determine and compare the philosophic orientations and teaching attitudes of teachers employed in the schools of two St. Louis school districts, one urban and the other suburban.

A. PROCEDURE

149 elementary and secondary teachers of a low-economic level district in the school system of the city of St. Louis and 169 teachers of a middle-economic level school district in St. Louis County comprised the samples in the study (Table 1). All the schools within the selected urban and suburban district were represented, the participating teachers in each school having voluntarily elected to respond to the two test instruments utilized. The decision to utilize voluntary, rather than randomly assigned respondents, was made in light of (a) the professional infeasability of "requiring" the tests to be taken by teachers, whether the teachers wished to or not, (b) the necessity for each teacher to respond freely and accurately to the instruments, and, lastly (c) the lack of experimental evidence indicating that voluntary and assigned subjects produce significantly different results on either test (Weinstock, 1968). Although the act of "volunteering" may itself be a kind of restricted random sampling, the assumed representativeness of the voluntary samples of urban and suburban teachers was, nevertheless, a limiting factor of this study.

Of the two tests utilized, the "GNC Scale to Measure Logical Consistency in Ideas About Education" was intended to measure the consistency with which the teachers logically related their philosophical (theoretical) views to their practical (applied) views about education (Gowin, Newsome, Chandler, 1961). The teachers were also tested on their attitudes toward classroom teaching by means of their responses to the "Minnesota Teacher Attitude Inventory" (Cook, Leeds, Callis, 1951).

The GNC Scale is designed to measure (1) which of the two major philosophical purports (i.e., empiricism or rationalism) an individual holds with regard to education and (2) how consistent he is in logically relating his theoretical educational aspects (i.e., nature of the universe, man, and mind) to his practical educational aspects (i.e., views on methods, curriculum, and evaluation) within one of these two Weltanschauungen (philosophical "world-outlooks"). A positive score on the test indicates an empiricist tendency and a negative score a rationalistic tendency on the part of the respondent. Scores of ±41 or greater reveal logical consistency at the .01 level of significance in one or the other philosophical frameworks. Scores of ±37 and ±32 demonstrate logical consistency at the .02 and .05 levels, respectively. These lower levels indicate a greater probability that the patterns of responses are coincidental, rather than indicative of logical consistency. Repeated experimental uses of the GNC Scale in terms of theory construction, test construction, test validation, and empirical research have added to its reliability and usefulness for determining logical consistency in educational ideas (Newsome, Gowin, 1968).

The rationale of the MTAI is based upon (1) defining the characteristics of desirable and undesirable teacher-pupil relations and, therefore, (2) discriminating between teachers who do or do not have good rapport with pupils. An examination of the test items reveals that inferior teachers may be essentially insecure socially (Cook, Leeds, Callis, 1951). The reasons for this may

include general appearance, failure in heterosexual adjustment, low family social status, and social unacceptance in high school. In addition to these, it is also assumed that insecure social relationships prior to entering teaching militate against the gaining of security through social responses of pupils during teaching. As the needs of the inferior teachers for social acceptance are thus not met in the classroom, they tend to seek security in other ways. These may include teachers (1) displaying aggression in the classroom by hostility towards people, in general, and toward children, in particular, (2) rigidly adhering to conventional, middle-class values, (3) largely emphasizing their position, authority, degrees, diplomas, and certificates, and (4) excessively stressing their knowledge of subject matter. Performance on the MTAI is reported in percentiles based upon norms achieved by various reported random samples of (1) undergraduate and graduate students enrolled in teacher-education programs and (2) experienced teachers already in the field (Cook, Leeds, Callis, 1951).

Prior research a propos to logical consistency and teaching attitudes, using either the GNC Scale individually or coupled with the MTAI, has already been reported. In one such study, it was found that the GNC Scale discriminated effectively between individuals who had less than a master's degree in education and those who had done advanced work in the field (Gowin, Newsome, Chandler, 1961). Two significant factors were revealed in a factor analytic study of GNC scores and performance on several standardized psychological tests by students enrolled in their first education course (Newsome, Gentry, 1964). The first factor, barely significant, was a general verbal factor presumed to include intelligence and reading abilities. The second factor, however, was highly significant. It was presumed to represent the meaning of logical consistency, namely, the ability to judge statements within a personal frame of reference.

In a later study elementary student teachers were found to be better able than those at the secondary level to maintain logically consistent views about education (Newsome, Gentry, Stephens, 1965). Two further studies supported the latter conclusion when it was revealed that the maintenance of logically consistent ideas about education was subject to greater flux on the part of non-academic, secondary student teachers (Weinstock, Peccolo, 1966; Weinstock, Peccolo, 1967). The ability of elementary student teachers to maintain both logically consistent ideas about education and prescribed teaching attitudes was disclosed in a subsequent study (Weinstock, Peccolo, 1970).

In a comparison of student teachers in a state university and a state college, the university elementary student teachers were discovered to be most logically consistent and best able to maintain desirable teaching attitudes (Weinstock, Peccolo, F. Coppedge, L. Coppedge, 1969). Finally, in a study of elementary student teachers enrolled in a physical and biological science-methods course, a significant increase in logical consistency was found at the end of the course on the part of those students initially not demonstrating such facility (Weinstock, Crawford, 1969). This had, in turn, supported the study's initial hypothesis that a logically consistent, empirical framework for relating theoretical to practical ideas about education might be enhanced by the empiricism inherent in a science-methods course.

In the study at hand, the logical consistency and teaching attitudes of the teachers as groups were each examined on several different levels. These included constituting the sample successively as two sexes (male and female), five age groups (of 10-year intervals), two degree types (bachelors' and masters'), and two teaching levels (secondary and elementary). Comparisons both between and within the two districts (urban and suburban) were similarly conducted through a multivariate and univariate analysis of variance (MANOVA, 1967). This statistical treatment was utilized to determine significant differences in per-

formance by the teachers on the two variables. Differences between and within the factors and levels were determined through the use of t-tests. Homogeneity of variance was ascertained through the F-prime test. A coded means of testing and reporting results was utilized, the identity of each respondent thus remaining known only to himself. It was thought that the latter procedure tended toward enlisting cooperation on the part of the teachers in the study. The results of the study, utilizing the same coded means, were reported to each school so that the participating teachers could compare their individual GNC and MTAI scores with the central tendencies of the various groupings comprising the study.

B. RESULTS

Among the total sample of teachers, logical consistency was found to be highest (at the .02 level of significance) among the teachers in the 20-29 age group (Table 1). Logical consistency at the .05 level was detected successively among the teachers of male sex, female sex, bachelor's degree, elementary level, and secondary level.

Central tendencies for the teachers within each district according to sex, age group, highest degree, and teaching level were also determined (Table 2). None of these groupings of urban teachers displayed logical consistency. Significant levels of logical consistency on the part of several suburban groupings of teachers were, however, revealed. The highest of these was among the 20-29 age group, it being so at the .01 level. The male sex, masters degree, and secondary level groups were logically consistent at the .02 level and the female sex, 30-39 age, bachelor's degree, and elementary level were so at the .05 level. The positive GNC scores revealed the logically consistent groupings of teachers to be empiricist, rather than rationalistic in their philosophic orientation.

In addition to levels of logical consistency, significant differences in GNC scores were found both between and within the districts. Such was the case between the urban male and female teachers when contrasted to their counterparts in the suburban district, in each instance the latter being the higher (Table 4b).

No difference in logical consistency between male and female teachers within either district was detected.

An analysis of GNC scores according to age within each district revealed highly significant differences between each of the five urban age groups when compared to the suburban 20-29 age group; these were consistently in favor of the latter (Table 5b). Although no differences between age groups within the urban district were found, the suburban 20-29 group had scored significantly higher than two older suburban groups of teachers.

Comparisons between districts by highest degree attained showed significantly higher scores in logical consistency on the part of the suburban bachelor's and master's degree teachers (Table 6b). The largest of these was found to exist between the urban and suburban bachelor's degree holders. No differences in logical consistency between the two types of degree recipients within either district were detected.

The final factor, teaching level, revealed an analogous situation in the logical consistency of the teachers within each district (Table 7b). The suburban elementary and secondary teachers had scored significantly higher than those in the urban district, the greatest difference occurring between the elementary teachers. No differences between the teaching levels within either district were found.

Significant interactions on GNC scores between teachers of various district-sex-degree groupings were also detected (Table 8a). In each of the six significant comparisons subsequently found, the suburban teachers had scored higher than the urban teachers on this criterion measure. The largest difference occurred between the female-bachelor's degree teachers when compared by districts. In another instance, the suburban-female-bachelor's degree teachers had attained significantly higher GNC scores than had the urban-female-master's degree teachers.

Measurements analogous to those made for the GNC Scale were also conducted for performance by the teachers on the Minnesota Teacher Attitude Inventory (Table 1).

The highest scores on this criterion measure were made by all the teachers when grouped successively in the categories of female sex, 20-29 age group, bachelor's degree, or elementary level. Within each district the largest MTAI scores were attained by the teachers in the following order: suburban female sex, 40-49 age group, bachelor's degree, and elementary level, and the urban female sex, 20-29 age group, bachelor's degree, secondary level (Table 2).

The only significantly greater MTAI scores either between or within the districts were those of the suburban female teachers, in contrast to those achieved by the suburban male teachers (Table 4d). No differences in MTAI scores with regard to either age group (Table 5c), highest degree (Table 6c), or teaching level (Table 7c) were detected either between or within the two districts. No significant interactions on the MTAI between or within districts for various sex-degree teacher groupings were found (Table 8c).

C. DISCUSSION

Notable differences on the basis of certain philosophical, logical, and psychological criterion measures were detected between the teachers of an urban and a suburban school district in the St. Louis metropolitan area. The total sample of teachers was logically consistent philosophically in relating ideas about educational theory and practice within an empiricist, rather than rationalistic framework of reference. Thus the teachers in toto demonstrated an ability to relate their classroom teaching experiences to their ontological, epistemological, and axiological purports about the nature of the universe and man, truth and knowledge, and values and ethics (Weinstock, 1968). District-wise, however, the suburban teachers were able to do so to a significantly greater extent than those employed in the urban school district. This may be due to either specific types of educational backgrounds and/or professional experiences attributable to each of the two groups.

Male and female teachers were found to be no different on this measure within either district (despite the observed differences between the districts.) Age-wise, the suburban 20-29 year age group showed the greatest level of logical consistency, followed in order by each of the older suburban age groups. This could be indicative of (1) more empirical and logically consistent professional courses taken by the younger groups, (2) a GNC Scale "success" factor being based on the recency of course work, or, perhaps, (3) an adverse effect on logical consistency related to years of actual teaching experience.

The lack of difference in logical consistency between bachelor's and master's degree holders within either district thus questions (1) whether graduate work for teachers does not affect their ability to relate ideas about educational theory and practice or (2) whether subsequent professional experiences in the schools negate any changes in logical consistency acquired through graduate work. The sharp differences between the masters' degree holders in the two districts does not necessarily answer this question, as further information is required about where such graduate work was actually accomplished. If teachers in both districts earned the advanced degrees from similar institutions, however, then the differences may perhaps be attributable to the particular professional environment present in their respective urban and suburban school districts. A parallel conclusion may be drawn from the differences between the bachelors' degree holders in the two districts.

The higher strata of logical consistency evidenced on the part of the suburban teachers, when viewed according to teaching levels, may be likewise explained. Prior research has consistently revealed the presence of a higher level of logical consistency among elementary, rather than secondary student teachers. This has been attributed to the challenge by the more instrumental (practical) emphasis of the public high school to the secondary teacher's intrinsic (content) valuation of knowledge (as acquired largely through traditional university training). Further evidence of this phenomenon is indicated by the successively

decreasing differences in logical consistency among the teachers within each district in this study, the two elementary groups differing the most and the two secondary groups the least. This adherence to anticipated differences between the teaching environments of the teachers' respective districts thus does not vary as greatly as do the teachers' own teaching-level backgrounds.

The general lack of differences between the two districts' teachers on teaching attitudes suggests that neither a schools' location, nor the teacher's age, degree, or teaching level, seem to indicate differences in displays of social insecurity through undesirable classroom teaching interactions with pupils. A significant difference between the suburban male and female teachers does, nevertheless, suggest that characteristics of male and female teachers in general might be further explored.

A much closer look could also be taken at the professional and general educational background of teachers seeking employment in either lower-economic level, urban schools or higher-economic level, suburban schools. If logical consistency in relating ideas about educational theory to educational practice is desirable, then those youngest, bachelor's degree teachers of either sex and teaching level who tend to seek employment in suburban schools should be those particularly sought by the urban schools. The implementation of such a recruitment policy, however, might also have other effects. Among these might be the decision for more salary increments being offered to beginning teachers, rather than to experienced teachers.

If, on the other hand, teaching experience tends to decrease performance on such measures as utilized in this study, then perhaps the teaching environment might be one of the reasons. This could then be indicative of a conflict between the teachers' instrumentally-oriented, professional preparation (i.e., theory) and intrinsically-oriented, professional experiences (i.e., practice). Such a consequence could, in turn, raise questions about the nature of both elementary

and secondary teacher-preparation programs with regard to their long-term effects upon teachers in meeting the needs of the lower-economic, urban school environment.

In light of such possibilities, it seems desirable that a closer examination be made of those factors liable to affect a prospective teacher's career. Increased attention should thus be particularly directed toward (1) the teacher's professional program, (2) the school district's philosophy (i.e., its goals and suggested means for achieving them), and (3) the personnel-selection processes of both the teacher's professional school (college or university) and employing school district.

D. SUMMARY

Increased interest in the problems associated with lower socio-economic, urban schools has suggested possible differences between urban and suburban teachers. A study was therefore undertaken to contrast the philosophic orientation, logical consistency, and teaching attitudes of teachers in a St. Louis lower socio-economic, urban and middle socio-economic, suburban school district. A total of 318 teachers responded to the "GNC Scale of Logical Consistency in Ideas about Education" and the "Minnesota Teacher Attitude Inventory." The GNC Scale measured how logically and consistently the teachers related theory to practice in education within either a rationalistic or empiricist frame of reference. The inventory determined the degree to which they maintained a prescribed set of classroom teaching attitudes. Multi-variate analysis of variance were used to ascertain differences between and within the two districts according to sex, age, degree, and teaching level.

Both urban and suburban teachers displayed an empiricist, rather than a rationalistic philosophical frame of reference toward education. Taken in toto, however, the suburban teachers were more logically consistent in relating such theoretical purports to their practical views about education. The highest level was demonstrated by the suburban 20-29 age group. No differences in logical

consistency between holders of bachelor's and master's degrees were detected. Likewise, no differences were found between the districts in the maintainance of prescribed teaching attitudes on the part of the teachers.

The teacher's ability to logically and consistently relate ideas about educational theory and practice seems to be highly related to his age and choice of school districts. It appears to be much less connected with his sex, master's degree attainment, or level of teaching. If logical consistency in educational ideas is desirable, therefore, the effect of both a school's socio-economic level and its urban nature needs to be considered. This suggests that more of the type of young teachers currently aspiring for suburban teaching should,instead,be encouraged to teach in lower socio-economic, urban schools.

TABLES

AND

REFERENCES

PHILOSOPHIC ORIENTATION, LOGICAL CONSISTENCY, and TEACHING ATTITUDES OF URBAN AND SUBURBAN TEACHERS*

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* Tables and references accompanying the paper presented at the 1970 Annual Meeting of the American Educational Research Association, Minneapolis, Minnesota, March 2-6, 1970.

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Table 1

CENTRAL TENDENCIES ON GNC AND MTAI IN TOTAL SAMPLE:
ALL FACTORS AND LEVELS

Factor	Level	Variables	N	M	SD
Sex	Male	GNC	69	32*	19
		MTAI	69	22	33
	Female	GNC	249	32*	20
		MTAI	249	32	30
Age	20-29	GNC	125	37**	20
		MTAI	125	33	30
	30-39	GNC	103	30	19
		MTAI	103	28	31
	40-49	GNC	56	29	18
		MTAI	56	31	33
	50-59	GNC	24	26	20
		MTAI	24	25	32
	60-69	GNC	10	26	23
		MTAI	10	19	37
Degree	Bachelors	GNC	246	32*	21
		MTAI	246	31	30
	Masters	GNC	72	31	17
		MTAI	72	27	34
Teaching	Elementary	GNC	223	32*	19
		MTAI	223	31	29
	Secondary	GNC	95	32*	21
		MTAI	95	28	35

*** Logically consistent at .01 level of significance
** Logically consistent at .02 level of significance
* Logically consistent at .05 level of significance

Table 2

CENTRAL TENDENCIES ON GNC AND MTAI IN EACH DISTRICT:
ALL FACTORS AND LEVELS

Factor	Level	Variables	Urban N	Urban M	Urban SD	Suburban N	Suburban M	Suburban SD
Sex	Male	GNC	36	27	18	33	38**	18
		MTAI	36	25	35	33	20	30
	Female	GNC	113	27	18	136	36*	20
		MTAI	113	29	31	136	35	29
Age	20-29	GNC	42	29	22	83	41***	18
		MTAI	42	34	30	83	32	30
	30-39	GNC	64	26	19	39	35*	20
		MTAI	64	27	31	39	29	31
	40-49	GNC	26	26	14	30	31	22
		MTAI	26	26	33	30	35	33
	50-59	GNC	12	24	21	12	27	20
		MTAI	12	19	37	12	31	27
	60-69	GNC	5	26	13	5	25	32
			5	13	51	5	25	19
Degree	Bachelor	GNC	104	27	19	142	36*	20
		MTAI	104	29	31	142	32	29
	Masters	GNC	45	27	16	27	39**	16
		MTAI	45	26	35	27	30	34
Teaching	Elementary	GNC	93	25	19	130	36*	18
		MTAI	93	26	30	130	34	28
	Secondary	GNC	56	29	17	39	37**	25
		MTAI	56	31	36	39	23	34

*** Logically consistent at .01 level of significance
** Logically consistent at .02 level of significance
* Logically consistent at .05 level of significance

Table 3a

ANALYSIS OF VARIANCE OF DIFFERENCES ON GNC WITHIN TOTAL SAMPLE: ALL FACTORS

Factor	Source of Variance	DF	SS	MS	F Test
Sex	Sex	1	4	4	0.01
	Within	316	123875	392	
	Total	317	123879		
Age	Age	4	5764	1441	3.82**
	Within	313	118114	377	
	Total	317	123879		
Degree	Degree	1	26	26	0.07
	Within	316	124869	394	
	Total				
Teaching	Teaching	1	29	29	0.07
	Within	316	123850	392	
	Total	317			

**p=.01

TABLE 3b

ANALYSIS OF VARIANCE OF DIFFERENCES ON MTAI WITHIN TOTAL SAMPLE: ALL FACTORS

Factor	Source of Variance	DF	SS	MS	F Test
Sex	Sex	1	5532	5532	5.82*
	Within	316	300244	950	
	Total	317			
Age	Age	4	3504	876	0.91
	Within	313	302272	966	
	Total	317	305776		
Degree	Degree	1	621	621	0.64
	Within	317	306055	964	
	Total	318			
Teaching	Teaching	1	707	707	0.73
	Within	316	305069	965	
	Total	317	305776		

*p=.05

TABLE 4a

ANALYSIS OF VARIANCE OF DIFFERENCES ON GNC BETWEEN AND WITHIN DISTRICTS: SEX FACTOR

Source of Variance	DF	SS	MS	F Test
District - Sex	3	7611	2537	6.85**
Within	314	116267	370	
Total	317	123879		

**p=.01

TABLE 4b

T-TESTS OF SIGNIFICANT DIFFERENCES ON GNC BETWEEN AND WITHIN DISTRICTS: SEX FACTOR

District-Sex Compared	DF	t-Test
Urban-Male and Sub.-Male	68	-2.52*
Urban-Male and Sub.-Female	171	-2.52*
Urban-Female and Sub.-Male	145	-3.07*
Urban-Female and Sub.-Female	248	-3.79**

**p=.01
*p=.05

TABLE 4c

ANALYSIS OF VARIANCE OF DIFFERENCES ON MTAI BETWEEN AND WITHIN DISTRICTS: SEX FACTOR

Source of Variance	DF	SS	MS	F Test
District-Sex	3	7873	2624	2.77*
Within	314	297903	949	
Total	317	305776		

*p=.05

TABLE 4d

T-TESTS OF SIGNIFICANT DIFFERENCES ON MTAI BETWEEN AND WITHIN DISTRICTS: SEX FACTOR

District-Sex Compared	DF	t-Test
Sub.-Male and Sub.-Female	168	-2.62**

**p=.01

TABLE 5a

ANALYSIS OF VARIANCE OF DIFFERENCES ON GNC BETWEEN AND WITHIN DISTRICTS: AGE FACTOR

Source of Variance	DF	SS	MS	F Test
District-Age	9	12124	1347	3.71**
Within	308	111754	363	
Total	317	123878		

**p=.01

TABLE 5b

T-TESTS OF SIGNIFICANT DIFFERENCES ON GNC BETWEEN AND WITHIN DISTRICTS: AGE FACTOR

District-Age Compared	DF	t-Test
Urb-20-29 and Sub-20-29	123	-3.17**
Urb-30-39 and Sub-20-29	145	-5.12***
Urb-30-39 and Sub-30-39	101	-2.53*
Urb-40-49 and Sub-20-29	107	-4.00***
Urb-40-49 and Sub-30-39	63	-2.16*
Urb-50-59 and Sub-20-29	93	-3.07**
Sub-20-29 and Sub-40-49	111	2.44*
Sub-20-29 and Sub-50-59	93	2.44*

***p=.001
**p=.01
*p=.05

TABLE 5c

ANALYSIS OF VARIANCE OF DIFFERENCES ON MTAI BETWEEN AND WITHIN DISTRICTS: AGE FACTOR

Source of Variance	DF	SS	MS	F Test
District-Age	9	6059	673	0.69
Within	308	299717	973	
Total	317	305776		

TABLE 6a

ANALYSIS OF VARIANCE OF DIFFERENCES ON GNC BETWEEN AND WITHIN DISTRICTS: DEGREE FACTOR

Source of Variance	DF	SS	MS	F Test
District-Degree	3	7691	2564	6.93**
Within	314	116188	370	
Total	317	123879		

**p=.01

TABLE 6b

T-TESTS OF SIGNIFICANT DIFFERENCES ON GNC BETWEEN AND WITHIN DISTRICTS: DEGREE FACTOR

District Degree Compared	DF	t-Test
Urb-Bach. and Sub-Bach.	244	-3.61***
Urb-Bach. and Sub-Mast.	129	-2.98**
Urb-Mast. and Sub-Bach.	185	-2.77**
Urb-Mast. and Sub-Mast.	70	-3.04**

***p=.001
**p=.01

TABLE 6c

ANALYSIS OF VARIANCE OF DIFFERENCES ON MTAI BETWEEN AND WITHIN DISTRICTS: DEGREE FACTOR

Source of Variance	DF	SS	MS	F Test
District-Degree	3	1666	555	0.57
Within	314	304110	968	
Total	317	305776		

TABLE 7a

ANALYSIS OF VARIANCE OF DIFFERENCES ON GNC BETWEEN AND WITHIN DISTRICTS: TEACHING FACTOR

Source of Variations	DF	SS	MS	F Test
District-Teaching	3	7972	2657	7.20**
Within	314	115907	369	
Total	317	123879		

**p=.01

TABLE 7b

T-TESTS OF SIGNIFICANT DIFFERENCES ON GNC BETWEEN AND WITHIN DISTRICTS: TEACHING FACTOR

District-Teaching Compared	DF	t-Test
Urb-Elem. and Sub-Elem.	221	-4.27***
Urb-Elem. and Sub-Sec.	130	-3.00**
Urb-Sec. and Sub-Elem.	184	-2.56*
Urb-Sec. and Sub-Sec.	93	-1.97*

***p=.001
**p=.01
*p=.05

TABLE 7c

ANALYSIS OF VARIANCE OF DIFFERENCES ON MTAI BETWEEN AND WITHIN DISTRICTS: TEACHING FACTOR

Source of Variation	DF	SS	MS	F Test
District-Teaching	3	5769	1923	2.01
Within	314	300007	955	
Total	317	305776		

TABLE 8a

ANALYSIS OF VARIANCE OF DIFFERENCES OF INTERACTIONS ON GNC BETWEEN AND WITHIN DISTRICTS: SEX-DEGREE FACTORS

Source of Variation	DF	SS	MS	F Test
District-Sex-Degree	7	7785	1112	2.97**
Within	310	116093	374	
Total	317			

**p=.01

TABLE 8b

T-TEST OF SIGNIFICANT DIFFERENCES OF INTERACTIONS ON GNC BETWEEN AND WITHIN DISTRICTS: SEX-DEGREE FACTORS

District-Sex-Age Compared	DF	t-Test
Urb.-Male-Bach. and Sub.-Male-Mast.	33	-2.18*
Urb.-Fem.-Bach. and Sub.-Fem.-Bach.	97	-2.35*
Urb.-Fem.-Bach. and Sub.-Fem.-Bach.	206	-3.16**
Urb.-Fem.-Mast. and Sub.-Male-Mast.	42	-2.59*
Urb.-Fem.-Mast. and Sub.-Fem.-Bach.	151	-2.42*
Urb.-Fem.-Mast. and Sub.-Fem.-Mast.	39	-2.11*

**p=.01
*p=.05

TABLE 8c

ANALYSIS OF VARIANCE OF INTERACTIONS ON MTAI BETWEEN AND WITHIN DISTRICTS: SEX-DEGREE FACTORS

Source of Variation	DF	SS	MS	F Test
District-Sex-Degree	7	8616	1231	1.28
Within	310	297160	959	
Total	317	305776		

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